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Executive Registry

60-1918

DD/S&T-0986-64

9 March 1964

ADM-2

**MEMORANDUM FOR:** Deputy Director of Central Intelligence  
**THROUGH :** Executive Director -- Comptroller  
**SUBJECT :** Approval of Funds to Pursue Development of Miniaturized Traveling Wave Tube

1. This memorandum transmits a recommendation for approval. Such recommendation is contained in paragraph seven.

2. **OBJECTIVES:** Our previous SIGINT program required the development of a low noise traveling wave tube pre-amplifier that exhibited high gain with a very low noise figure. This development was accomplished to a very high degree of satisfaction by the [redacted] of [redacted]. Pursuant to our request, [redacted] submitted a proposal to develop a miniaturized version of this preamplifier. The program will entail the development and production of a battery powered TWT preamplifier that weighs approximately five pounds. Their new concept in heater cathode design will reduce the power consumed from the present 2.00watts, to a possible 16 milli-watts. This latter figure will permit the system to operate continuously for a period of ten days.

3. **APPLICATION:** Many of our SIGINT activities have demonstrated a need for a portable collection system with a capability comparable to a fixed station operation. This proposed advancement in miniaturization and low power consumption will permit the development of a highly sensitive preamplifier for portable receivers that will closely approach this objective. If the program achieves its desired goal, an operational tool will become available that will greatly enhance many future microwave systems and permit the upgrading of certain systems that are in current use.

4. **TECHNICAL SPECIFICATIONS:** Background data contained in attachments A and B is designed to provide necessary technical information upon which to evaluate the approval action recommended in paragraph seven.

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5. **CONTRACTOR:** The idea and practical method for designing optimum miniaturized permanent magnets was conceived at [REDACTED]. They have a vast amount of background and experience and have already accumulated data that clearly demonstrates their ability to focus a low-noise tube at better than 99 percent transmission through a single reversal structure. Since other manufacturers of TWT's have not demonstrated a similar ability, [REDACTED] is considered to be a sole source for the accomplishment of this requirement. 25X1A5A1

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6. **DURATION AND FUNDING:** Total development expense for the miniature, low power, portable TWT is estimated at [REDACTED]. The FY-64 operating budget for the Office of ELINT earmarked [REDACTED] for the execution of this research effort, and the balance will be obtained by reprogramming. The contract is to be valid for a period of one year from date of negotiation and will require no additional funding in FY-61.

7. Based on the foregoing, it is recommended that you approve an expenditure of [REDACTED] for purposes set forth herein.

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Original signed by  
[REDACTED]

*[Signature]*  
**ALBERT D. PHILLON**  
Deputy Director  
(Science and Technology)

The recommendation contained in paragraph seven is approved:

*[Signature]*

(Signed) [REDACTED]  
Deputy Director of Central Intelligence

17 MAR 1964

Date

Attachments

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- A. Memorandum [REDACTED] 125-64  
B. [REDACTED] Proposal

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